# The Impact of Collaborative Consumption on the Environmental Efficiency of Well-Being (EWEB) of Residents in Columbus, Ohio

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*denotes usage of entire set of collaborative consumption behaviors

## Abstract

Consumer society has resulted in a wide range of environmental impacts, which has led to questions about whether consumer society and individual consumption actually enhance well-being. There is evidence that pursuing consumerism and consumption negatively impacts well-being (Briceno and Stagl, 2006). The key research question for this study is whether humans can both reduce environmental impacts and improve well-being by altering their consumption patterns. This study examines whether engaging in collaborative consumption can lead to higher levels of well-being and lower ecological footprints. Collaborative consumption is "a form of social exchange that takes place among people known to each other, without any profit" (Eckhardt and Bardhi, 2015). It is unclear from empirical research whether or not collaborative consumption actually improves well-being and decreases environmental impact. One way of measuring these factors is the environmental efficiency of well-being (EWEB), which was originally developed to assess a nation-state's efficiency in enhancing human well-being through the use of economic, natural, and human resources (Dietz et al., 2009). For this study, I predicted that higher reported engagement in collaborative consumption would correspond to higher EWEB scores. Studies on whether engagement in collaborative consumption actually leads to lower environmental impacts or increased sustainability are sparse. It is unknown whether higher engagement in collaborative consumption practices actually leads to higher levels of EWEB. This research explores the relationship between engagement in collaborative consumption and the EWEB scores of Columbus residents. This study was designed to examine Columbus residents' perceptions of their well-being and measure their consumption habits. Data was collected using a 20-page survey distributed to Columbus residents in Clintonville and Olde Towne East, two neighborhoods that vary in socioeconomic conditions. The key dependent

variable is EWEB, which is calculated using measures of an individual's self-reported well-being and ecological footprint. The key independent variable is *engagement in collaborative consumption*, which is measured by responses to questions about 17 collaborative consumption behaviors. There were 271 completed survey responses. We fit linear regression models to examine the relationship between collaborative consumption and EWEB. Results indicate that there is a positive and statistically significant relationship between engagement in collaborative consumption and EWEB, after controlling for age and income, and accounting for heteroscedasticity. Results also suggest that impact of collaborative consumption on EWEB is largely driven by increases in well-being rather than reductions in ecological footprint. Moreover, results suggest that the relationship between collaborative consumption and EWEB varies by neighborhood: it is statistically significant in Clintonville, but not Olde Towne East. These results have implications for individuals' ability to reduce environmental impacts through collaborative consumption. Future studies exploring collaborative consumption and its relationship to the EWEB should select a wider range of territories to control for social and economic factors, and a smaller set of collaborative consumption behaviors to focus results. Developing a better understanding of what factors contribute to increasing well-being and reducing ecological footprint can influence policy decisions to positively impact communities. Future research within the area of collaborative consumption and EWEB is necessary to make informed and socially beneficial policy decisions on the local level, and beyond.

## Introduction

Consumer society has generated a wide range of environmental impacts, such as climate change, food waste, biodiversity loss, and environmental pollution. Despite the fact that the world population has grown by only a factor of four in the past century, industrial output has grown by a factor of 40, and per capita consumption has increased at a staggering rate (Arrow et al., 2004). Though some contend that current levels of consumption are necessary investments to yield higher living standards in the future (Arrow et al., 2004), others have found instances in which greater consumption has led to lower quality of life (Briceno and Stagl, 2006). Thus, there are questions about whether consumer society and individual consumption actually enhance well-being.

Much of the literature on sustainability is related to the environmental and economic impacts of consumption on the quality of life of current and future generations. The World Commission on Environment and Development (1987) contends that consumption standards must have regard for long-term sustainability and be ecologically possible. Clark and Munn (1986) declare that "a major challenge in the coming decades is to learn how long-term, large-scale interactions between environment and development can be better managed to increase prospects for ecologically sustainable improvements in human well-being." Academic definitions of sustainability span decades and broad bodies of work (Pearce and Walrath, n.d.). However, much of the literature on sustainability alludes to it being the process of developing and improving the human condition without undercutting the environmental resources and functions on which humans and posterity rely. Thus, addressing the broad goal of achieving a more

sustainable society involves understanding how to improve well-being in an environmentally responsible manner – which is directly relevant to consumption.

Some researchers assume that increasing consumption is synonymous with rationally increasing utility, and thus, improving well-being (Russell and Wilkinson, 1979; Begg et al., 2003). Campbell (2004) contends that through buying the things they need and want, individuals fashion their identity and that certainty of identity can lead to feelings of well-being. Other scholars (Edwards, 2000; Miller, 2004) believe that consumption is contradictory in its nature and meaning, since modern society's freedom to consume can "paradoxically increase feelings of anxiety and lead to conformity" (Miller, 2004). Furthermore, several studies suggest that individual consumption is not consistently and predictably related to well-being (Guillen-Royo and Wilhite, 2015; Briceno and Stagl, 2006; Ambrey and Daniels, 2016; Andersson et al., 2014). In fact, Briceno and Stagl (2006) find that the process of pursuing consumerist lifestyles and engaging in consumptive behavior *negatively* impacts well-being.

Regardless of the impact of consumption on well-being, it seems that humans are surpassing Earth's ecological limits, in part due to consumption (Steffen et al., 2015; Brown and Vergragt, 2014). If over-consumption reduces well-being and increases environmental degradation, then it is critical to address the challenge of determining whether and how *reductions* in consumption can be achieved without negatively impacting well-being. Jackson (2005) has labeled the possibility of "liv[ing] better by consuming less and reduc[ing] impact on the environment in the process" the 'double dividend.'

The key research question for this study is whether humans can both reduce environmental impacts and improve well-being by altering their consumption patterns. One approach to address the negative social and environmental impacts of consumption is to consume less by curtailing the amount consumed. Another way to address the issue is to consume more efficiently. These two perspectives are both considered as forms of sustainable consumption, which has been the focus of a wide range of academic studies (Cohen and Murphy, 2001; Burgess et al., 2003; Shove, 2003; Southerton et al., 2004; Barr and Gilg, 2006; Eden et al., 2008; Hobson, 2010). There are many definitions and perspectives on sustainable consumption, but the most relevant for this study is the perspective that sustainable consumption entails ecologically responsible consumption patterns based on shared use (Baalderjahn, 1988; Mont, 2004). This perspective dovetails nicely with the idea that one can consume more sustainably by engaging in collaborative consumption.

With this study, I examine whether engaging in collaborative consumption can lead to higher levels of well-being and lower ecological footprints. We explore the potential benefits of collaborative consumption by calculating an individual's environmental efficiency of well-being (EWEB), which is a measure of one's well-being relative to their ecological footprint (Dietz et al., 2009). After providing a general background on sustainable consumption and collaborative consumption, I describe my approach to measuring EWEB in more detail.

Collaborative consumption is a category of consumption that appears to be particularly promising for increasing sustainability of consumer society because it could both allow consumers to reduce the number of items they purchase, but also enhance social relations and

community cohesion – critical aspects of well-being. Collaborative consumption is a component of the World Economic Forum's definition of "collaborative economy," which also includes collaborative production, finance, and learning (Rinne, 2017). Though some equate collaborative consumption to the sharing economy (Horowitz, 2011; *The Economist*, 2013), the sharing economy is commonly associated with peer-to-peer commercial firms and services like Uber and Airbnb (Botsman and Rogers, 2010; Bozek, 2018; *The Economist*, 2013; Sundararajan, 2016; Strauss, 2017), placing it outside of the scope of this study. Popularizing collaborative consumption could create a more "inclusive and sustainable" capitalism (Foroohar, 2016) in that sharing can have environmental benefits by increasing efficient use of resources (*The Economist*, 2013). Researchers have found that "sharing services can eliminate waste, improve efficiency, connect people to one another, and allow [them] to make money on the extra stuff in [their] closets and garages" (Mathews, 2014).

The definition of collaborative consumption, for the purpose of this research, is "a form of social exchange that takes place among people…without any profit" (Eckhardt and Bardhi, 2015), which includes behaviors that incorporate some form of social interaction expected to reduce material or energy use, relative to non-sharing alternatives. Collaborative consumption requires social interactions, which can expand or strengthen networks and social capital (Grootaert and Bastelaer, 2002). Social capital is the "collective value of one's social networks, and the norms of reciprocity that arise from them" (Putnam, 2000). Kahneman and Krueger (2006) contend that increasing social contacts is a better way of maximizing society's welfare than increasing opportunities for consumption. Social contact is strongly associated with subjective well-being (Dolan et al., 2008), and could reduce consumption if individuals draw on their social networks

and utilize their accumulated social capital to engage in collaborative consumption (Briceno and Stagl, 2006; McLaren and Agyeman, 2015).

However, it is unclear from empirical research whether or not collaborative consumption actually improves well-being and decreases environmental impact in part because studies on the relationship between collaborative consumption, environmental impacts, and well-being are sparse. One way of operationalizing these potential outcomes is through a measure called EWEB, which was originally developed to assess a nation-state's efficiency in enhancing human well-being through the use of economic, natural, and human resources (Dietz et al., 2009). Prior studies have shown that, at the national level, well-being may be improved without having adverse effects on the environment (Dietz et al., 2009). However, while EWEB has been assessed for 135 nations (Dietz et al., 2009), it has not been measured at the individual level. Measuring EWEB at the individual level is necessary to understand what policies or programs can be developed to create change in consumer behaviors and to enhance well-being.

For this study, I predicted that higher reported engagement in collaborative consumption would correspond to higher EWEB scores. It is unknown whether higher engagement in collaborative consumption practices actually leads to higher levels of EWEB. This study is thus one of the first to employ EWEB at the individual level, and it contributes to our understanding of whether and to what degree engagement in collaborative consumption can be part of a more sustainable lifestyle.

## Methods

This study was designed to examine Columbus residents' perceptions of their well-being and measure their consumption habits, and determine the characteristics of individuals with high EWEB. Data was collected using a structured survey that spanned 20 pages and that included four question blocks with the following categories:

1. Well-being;
2. Consumption and environment;
3. Collaborative consumption; and
4. Basic demographic information.

### *Key dependent variable*

The key dependent variable is EWEB, which is calculated using measures of an individual's self-reported well-being and ecological footprint. The first section of the survey measured well-being with a context-specific well-being metric. This well-being metric asked respondents questions about perceptions of their well-being using a set of 26 questions. A Likert scale was used to measure responses, which had 7 options ranging from "strongly disagree" to "strongly agree."

There were several steps to creating this well-being metric, beginning with a literature review led by Dr. Jeremy Brooks and a former graduate student in the School of Environment and Natural Resources, Kelly Claborn. This literature review resulted in an emphasis on five "capitals" in the well-being metric. The five "capitals" included social, human, financial, physical, and psychological (eudaimonic) capital, each of which included multiple indicators. We modified the list used by Oxfam and created a list of 19 indicators (see Table 1). Information from the

literature review was combined with focus group meetings and a ranking activity with Columbus residents to develop the full metric.

**Table 1: Well-Being Indicators**

| | ***Activity description*** |
|---|---|
| *1* | I am part of a community |
| *2* | I have opportunities and the freedom to make my own choices |
| *3* | I feel good about myself and my life |
| *4* | I feel respected and valued |
| *5* | The people I care about are safe |
| *6* | I am physically healthy |
| *7* | I have a safe and secure home to live in |
| *8* | I have enough skills/education to live a good life |
| *9* | I am positive about my future |
| *10* | I have good transportation to get where I need to go |
| *11* | I have access to places outside of my home to socialize and/or share my beliefs |
| *12* | I have good spiritual health |
| *13* | I have access to high quality services (healthcare, support services, policing, caring for the elderly, etc.) |
| *14* | I feel like I am part of something bigger than myself |
| *15* | I have access to infrastructure in my local community that is necessary for my lifestyle (sidewalks, public transportation, grocery stores, etc.) |
| *16* | I have income that is sufficient to pay the bills and buy what I need |
| *17* | I am free from discrimination |
| *18* | I enjoy my leisure time |
| *19* | I, or someone in my household, has a secure job |
| *20* | I have good relationships with friends |
| *21* | I have a sense of purpose and am making a contribution (in my job, relationships, community, or elsewhere) |
| *22* | I live in a safe and secure neighborhood |
| *23* | I have access to arts, culture, stimulation, hobbies, or other leisure activities |
| *24* | I have good relationships with family |
| *25* | I have satisfying work to do (paid or unpaid) |
| *26* | On an average day, I feel mentally healthy |

Five focus group meetings were held with a total of 21 residents from multiple neighborhoods to explore the factors that Columbus residents think are important for their well-being. In addition, a ranking activity was conducted in a number of locations to determine which factors Columbus residents feel are most important for their well-being. Details of the focus group meetings and ranking activity as well as how the results were integrated with the literature review can be found in Appendix A. The full survey containing the 26-item well-being metric can be found in Appendix B.

The second section of the survey measured ecological footprint, which helped us calculate respondents' EWEB scores. Ecological footprint measures the planet's biocapacity, or the ecologically productive land necessary to sustain life, and indicates whether populations or individuals consume within or beyond this capacity (Wackernagel and Rees, 1996). Questions in this section were taken from the Global Footprint Network's online personal footprint calculator, which calculates personal ecological footprints based on responses to a set of questions regarding food intake, purchase of common household goods, energy consumption, transportation, and other behaviors and lifestyle choices. Researchers manually entered survey responses into the online calculator to determine the number of global acres required to sustain each respondent's consumption level. The questions used to calculate ecological footprint can be found in the full survey in Appendix B.

Following Knight and Rosa (2011) EWEB was then calculated as the standardized residual from the fitted bivariate linear regression of ecological footprint on well-being. Individuals with a positive EWEB score have higher well-being relative to their ecological footprint, whereas

individuals with a negative EWEB score have lower well-being relative to their ecological footprint.

*Key independent variable*

The key independent variable is *engagement in collaborative consumption*. In the third section of the survey, respondents were asked about their engagement in 17 collaborative consumption behaviors (see Table 2). Respondents indicated whether they (often, sometimes, or never) engaged in each of these behaviors. These responses were then recoded as 1 (engaged in behavior) or 0 (did not engage in behavior). We used this binary coding to calculate the total number of collaborative consumption behaviors in which each respondent engaged.

In addition, we identified a subset of behaviors that were considered to be most likely to improve EWEB. Since there is no credible data on environmental impacts associated with the behaviors, this subset was identified by determining which behaviors were most important for creating or strengthening social relationships.

In a separate survey question, respondents were asked whether their engagement in collaborative consumption behaviors had strengthened existing relationships or resulted in new ones. I calculated the proportion of respondents whose engagement in a given behavior resulted in new or strengthened relationships. For behaviors to be included in the subset, at least 30 respondents had to report having engaged in it and more than 20% of respondents had to have reported that the behavior resulted in new or strengthened social relationships. Thus, this subset of 11 behaviors represents those that are the most "socially beneficial" (see Table 2).

**Table 2: Summary of Household Engagement in Collaborative Consumption Behaviors**

| *Collaborative Consumption Behavior* | *Total* | *S (%)* | *F (%)* |
|---|---|---|---|
| Borrowing/sharing a tool or equipment with a neighbor face-to-face | 175 | 44.0 | 22.0 |
| Sharing food grown in your own garden or garden plot | 113 | 42.5 | 28.3 |
| Borrowing/sharing books with friends/family | 221 | 39.8 | 20.8 |
| Growing food in a community garden | 40 | 37.5 | 42.5 |
| Car-pooling | 98 | 34.7 | 18.4 |
| Borrowing books or other media from library | 213 | 20.2 | 17.4 |
| Buying secondhand clothing, sporting goods, or furniture from secondhand stores | 211 | 15.6 | 16.1 |
| Borrowing a tool from a tool library | 34 | 14.7 | 17.6 |
| Buying secondhand items at a garage or rummage sale | 177 | 14.1 | 14.7 |
| Car-sharing | 78 | 12.8 | 5.1 |
| Purchasing produce through Community Supported Agriculture (CSA) | 78 | 11.5 | 12.8 |
| *Participating in childcare co-ops, nanny shares, or shared babysitting* | *22* | *59.1* | *40.9* |
| *Being part of a cooperative that shares tools, expertise, and equipment* | *8* | *37.5* | *25.0* |
| *Participating in a local time bank or informally bartering skills and/or expertise* | *24* | *12.5* | *16.7* |
| *Buying secondhand items via a website or listserv* | *170* | *10.0* | *10.0* |
| *Renting a tool from a hardware store* | *80* | *8.8* | *7.5* |
| *Using a mobile or online application/website to identify people with which to borrow/share equipment* | *20* | *5.0* | *10.0* |

**Key**

| ***Category*** | ***Denotes*** |
|---|---|
| Total | Total participation in CC behavior |
| S (%) | Percentage that have strengthened relationships through engagement in CC behavior |
| F (%) | Percentage that have formed relationships through engagement in CC behavior |
| *Italicized* | CC behaviors not included in subset |

*Control variables*

The fourth section of the survey included questions about demographics, which allowed us to control for the effects of age and income.

*Study site*

The study site is comprised of two neighborhoods located in Columbus, Ohio: Clintonville and Olde Towne East. We used census tracts from the 2010 U.S. Census to determine neighborhood boundaries. Clintonville and Olde Towne East vary in socio-economic conditions and were chosen so we could examine if and how survey results vary by study neighborhood. Clintonville is located north of downtown Columbus, whereas Olde Towne East is located east of downtown Columbus. Clintonville is known to be a socially, environmentally, and civically engaged community, and has historically housed many university professors (Columbus Neighborhoods, 2017). Olde Towne East is known for its historic value, proximity to the Near East Side of Columbus, and the diversity of its residents (Olde Towne East, 2018).

There is considerable socio-economic variation between the two neighborhoods. This variation is reflected in residents' median incomes, median home values, foreclosure rates, and racial make-up. The median income in Clintonville is $73,560, whereas the median income in Olde Towne East is $29,258 (U.S. Census Bureau, 2011-2015). According to Zillow (2018), the median home value in Clintonville is $271,600, whereas the median home value in Olde Towne East is $138,700. The home values in each neighborhood have risen by 8.5% and 4.8% over the past year, respectively; Zillow (2018) predicts that within the next year, home values will rise by 4% and 3.5%, respectively. Regarding foreclosure rates, 2.4 homes per 10,000 are foreclosed

each year in Clintonville. In Olde Towne East, 10.6 homes per 10,000 are foreclosed – greater than both the Columbus and national values of 6.8 and 1.6 (Zillow, 2018). Overall, Clintonville is wealthier, presumably more educated, and less racially diverse than Olde Towne East (see Table 3). 88.6% of the Clintonville population is white – the rest is a mix of Black or African American, Asian, mixed race, and other races. In comparison, only 24.9% of the Olde Towne East population is white. At 65.9%, a majority of the Olde Towne East population is Black or African American. Olde Towne East is evidently more racially diverse than Clintonville – and historically less prosperous and less educated (see Table 3).

**Table 3: Socioeconomic Comparison of Clintonville and Olde Towne East**

| | | Clintonville | OTE |
|---|---|---|---|
| **Population** | | 29,125 | 19,045 |
| **Median household income (USD)** | | $73,560 | $29,258 |
| **Income inequality (Gini coefficient)** | | 0.38 | 0.52 |
| **Median home value (USD)** | | $271,600 | $138,700 |
| **Foreclosure rate (per 10,000 homes)** | | 2.4 | 10.6 |
| **Racial make-up** | White | 88.6% | 24.9% |
| | Black or African American | 2.0% | 65.9% |
| | Asian | 4.7% | 1.3% |
| | Mixed race | 3.6% | 7.0% |
| | Other | 1.4% | 1.1% |
| **Education (% of population)** | No diploma | 2.5% | 16.4% |
| | High school diploma | 10.3% | 29.6% |
| | Some college, or associate's degree | 26.3% | 30.2% |
| | Bachelor's degree | 36.7% | 16.7% |
| | Graduate or professional degree | 24.2% | 7.1% |

*Survey distribution*

Researchers distributed surveys in both neighborhoods using the drop-off pick-up (DOPU) method. There were six sampling territories per neighborhood, with three randomly selected streets per sampling territory. Researchers aimed to distribute surveys to 25-30 households per street, or to 75-90 households per sampling territory. During rounds, researchers would drop off the surveys at the target number of households and inform residents that the survey would take them between twenty and thirty minutes to complete. As an incentive, residents were also informed of a lottery they could enter after completing the survey. There were five lottery prizes of one hundred dollars in cash. Residents could enter by providing a phone number or email address that would be independent from their responses.

Research assistants returned to each street within three days to pick up the completed survey. Residents were instructed to hang their completed surveys on their door. Research assistants retrieved the completed surveys and marked whether they were completed online or on paper. Data was preliminarily organized and coded in Microsoft Excel.

## Analysis and Results

All analyses were conducted using R statistical computing software. 18% of respondents completed the surveys online via either uniform resource locator (URL) or quick response (QR) code. 271 completed surveys were returned to research assistants. Following literature on DOPU survey dispersal (Steele et al., 2001; Allred and Ross-Davis, 2011; Clark and Finley, 2007), we calculated four response rates for contact, cooperation, completion, and response (see Table 4).

**Table 4: Survey Response Rates**

| ***Type and description*** | ***Rate*** |
|---|---|
| **Contact:** proportion of households that answered their door and engaged with a researcher out of all eligible households in the sample population | **56.8%** |
| **Cooperation:** proportion of completed surveys received from the households who were contacted (this includes households that refused to take a survey from the researcher) | **37.8%** |
| **Completion:** proportion of completed surveys received from the households who took a survey from the researcher and agreed to complete it | **43.2%** |
| **Response:** proportion of completed surveys out of all eligible households (contacted or not) | **21.5%** |

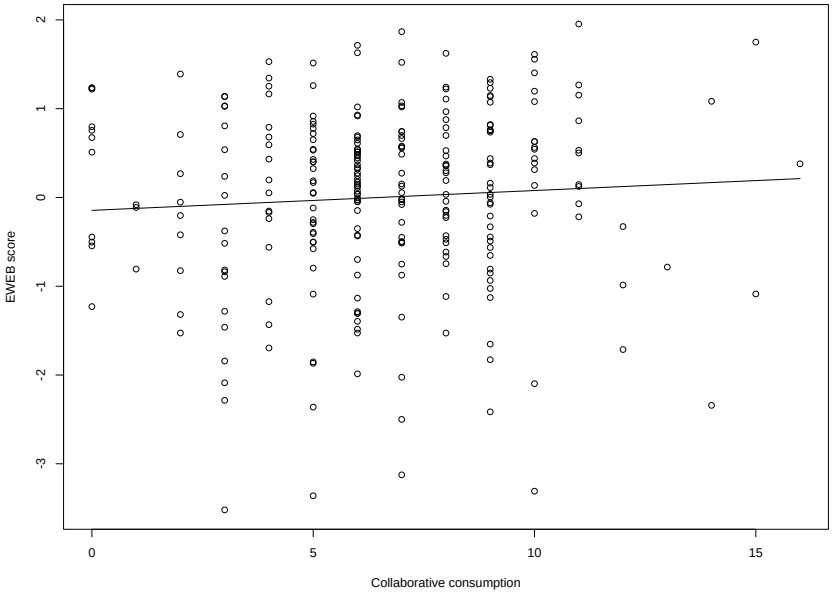
To examine the relationship between collaborative consumption and EWEB, we fit linear regression models. We did this for the full set of 17 collaborative consumption behaviors and the subset of 11 behaviors that had the largest impact on social relationships.

The first linear regression model suggests that there is a positive and statistically significant (at $p<0.10$) relationship between engagement in collaborative consumption and EWEB for the full set of collaborative consumption behaviors, after controlling for age and income (see Table 5 and Figure 1). Variance was not equal across the sample, which resulted in problems with heteroscedasticity in the models. We accounted for this with the *car* package in R that adjusted significance levels accordingly.

**Table 5: Collaborative Consumption* and EWEB**

| Variable | Coefficient (standard error) | p-value |
|---|---|---|
| Collaborative consumption | 0.04 (0.02) | 0.06 |
| Age | 0.01 (0.00) | 0.05 |
| Income (linear) | 1.18 (0.20) | <0.001 |
| Income (quadratic) | -0.46 (0.20) | 0.02 |

**Figure 1: Collaborative Consumption* and EWEB Plot**

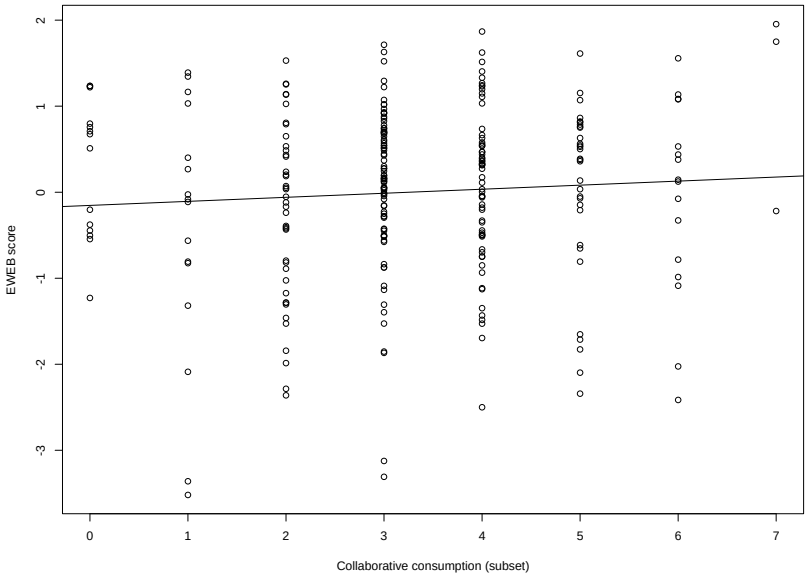


My results also suggest that there is a statistically significant relationship between engagement in the subset of collaborative consumption behaviors and EWEB, after controlling for age and income and accounting for heteroscedasticity (see Table 6 and Figure 2).

**Table 6: Collaborative Consumption and EWEB**

| Variable | Coefficient (standard error) | p-value |
|---|---|---|
| Collaborative consumption (subset) | 0.06 (0.03) | 0.02 |
| Age | 0.01 (0.00) | 0.06 |
| Income (linear) | 1.18 (0.19) | <0.001 |
| Income (quadratic) | -0.47 (0.20) | 0.02 |

**Figure 2: Collaborative Consumption and EWEB Plot**




To explore whether collaborative consumption enhances EWEB through its effect on well-being, ecological footprint, or both, I also fit models regressing collaborative consumption on well-being and on ecological footprint. In both, we controlled for age and income and accounted for

observed problems with heteroscedasticity. The models suggest that engagement in collaborative consumption behaviors is significantly associated with well-being, but not with ecological footprint. The relationship between collaborative consumption and well-being is statistically significant (p-value 0.04), while the relationship between collaborative consumption and ecological footprint is not statistically significant (see Tables 7 and 8).

**Table 7: Collaborative Consumption and Well-Being**

| Variable | Coefficient (standard error) | p-value |
|---|---|---|
| Collaborative consumption (subset) | 0.78 (0.37) | 0.04 |
| Age | 0.12 (0.06) | 0.03 |
| Income (linear) | 19.03 (2.71) | <0.001 |
| Income (quadratic) | -5.95 (2.72) | 0.03 |

**Table 8: Collaborative Consumption and Ecological Footprint**

| Variable | Coefficient (standard error) | p-value |
|---|---|---|
| Collaborative consumption (subset) | -0.04 (0.08) | 0.57 |
| Age | 0.02 (0.01) | 0.14 |
| Income (linear) | 3.01 (0.612) | <0.001 |
| Income (quadratic) | 0.45 (0.57) | 0.43 |

The relationship between collaborative consumption and EWEB also varies by neighborhood. We analyzed the relationship between engagement in the subset of 11 behaviors and EWEB in each neighborhood, while controlling for age and income. Results suggest that there is a statistically significant relationship between engagement in collaborative consumption and EWEB in Clintonville (p-value 0.04), but not in Olde Towne East (p-value 0.50) (see Table 9).

**Table 9: Collaborative Consumption and EWEB by Neighborhood**

| Variable | Clintonville | | Olde Towne East | |
|---|---|---|---|---|
| | **Coefficient (standard error)** | **p-value** | **Coefficient (standard error)** | **p-value** |
| Collaborative consumption (subset) | 0.08 (0.04) | **0.04** | 0.03 (0.05) | 0.50 |
| Age | 0.01 (0.004) | 0.06 | 0.002 (0.008) | 0.83 |
| Income (linear) | 1.13 (0.32) | **<0.001** | 1.14 (0.31) | **<0.001** |
| Income (quadratic) | -0.47 (0.33) | 0.15 | -0.40 (0.29) | 0.18 |

In Clintonville specifically, the relationship between collaborative consumption and well-being is statistically significant (p-value 0.06), whereas the relationship between collaborative consumption and ecological footprint is not statistically significant (p-value 0.28) (see Tables 10 and 11). These results are consistent with the analysis of the impact of collaborative consumption on EWEB in both neighborhoods. They suggest that in Clintonville, the impact of collaborative consumption on EWEB is driven by improvements in well-being, rather than by reductions in ecological footprint.

**Table 10: Collaborative Consumption and Well-Being in Clintonville**

| Variable | Coefficient (standard error) | p-value |
|---|---|---|
| Collaborative consumption (subset) | 0.99 (0.52) | **0.06** |
| Age | 0.17 (0.06) | 0.01 |
| Income (linear) | 17.63 (4.40) | <0.001 |
| Income (quadratic) | -5.11 (4.48) | 0.26 |

**Table 11: Collaborative Consumption and Ecological Footprint in Clintonville**

| Variable | Coefficient (standard error) | p-value |
|---|---|---|
| Collaborative consumption (subset) | -0.12 (0.11) | 0.28 |
| Age | 0.05 (0.02) | 0.004 |
| Income (linear) | 2.31 (0.79) | 0.008 |
| Income (quadratic) | 1.24 (0.75) | 0.10 |

It is important to note that the above results were significant after controlling for age and income. The effect of collaborative consumption on EWEB was consistently higher when analyzing the impact of the subset of top 11 collaborative consumption behaviors, rather than all 17 collaborative consumption behaviors listed in the survey.

## Discussion

Results from this study support the original hypothesis that there exists a positive relationship between engagement in collaborative consumption and EWEB. Individuals who engage in a greater number of collaborative consumption behaviors have significantly higher EWEB scores. The relationship between engagement in the subset of 11 collaborative consumption behaviors that generate new or stronger social relationships had a larger effect (larger coefficient from the regression) and was significantly associated with EWEB at a more conservative threshold for statistical significance than the full set of behaviors. Since EWEB is a score derived from a statistical relationship, it is difficult to assess the effect of collaborative consumption in practical terms.

In addition, I found that the relationship between the subset of collaborative consumption behaviors and EWEB is driven more by increases in well-being than by reductions in ecological footprint. This result matches other analyses that have examined the factors associated with EWEB (Claborn and Brooks, *unpublished data*) and is, perhaps, not surprising given that I selected our subset of behaviors based on their impact on social relationships as reported by respondents.

The results suggest that the impact of collaborative consumption on EWEB is driven by improvements in well-being, rather than by reductions in ecological footprint. That is, people who engaged in collaborative consumption did not have smaller ecological footprints compared to those who did not engage in collaborative consumption. These results have implications for individuals' ability to reduce environmental impacts through collaborative consumption. Thus, it

is possible, but not likely, that engaging in collaborative consumption will reduce one's environmental impact. Among other possibilities, this could be because of the way we measured ecological footprint.

We measured ecological footprint by asking questions about food sources and intake, household consumption, energy use, and transportation and mobility, then manually entering them into the Global Footprint Network's personal footprint calculator. Maybe people who engaged in collaborative consumption did not have smaller ecological footprints because collaborative consumption behaviors do not necessarily have any bearing on recycling behaviors, commute times, and energy sources, among other factors. Participating in a cooperative or renting a tool from a tool library could reduce the amount of household appliances one purchases but would not necessarily increase mobility or commute time.

Many of the factors considered in calculating ecological footprint cannot be impacted by, or are not likely to be impacted by, engagement collaborative consumption. Engagement in collaborative consumption could reduce the amount of food one purchases, but probably not whether a household uses electricity. For instance, one of the questions used to assess ecological footprint asks if respondents have electricity in their home. It is likely that most respondents have electricity in their home, just by virtue of the fact that they live in Columbus, Ohio, and the infrastructure for each home to have electricity exists.

Collaborative consumption is more popularly known in society as the "sharing economy." However, the exact meaning of sharing economy remains controversial. Popular media

consistently refers to it as the peer-to-peer economy (Asaravala, 2018; Mathews, 2014; *The Economist*, 2013), taking economy (Calo and Rosenblat, 2017), gig economy (Fox, 2016; Smith, 2016; Greenhouse, 2016; Geron, 2013), on-demand economy (Fox, 2016; Smith, 2016; Greenhouse, 2016; Cherry, 2016), crowd-based economy (Gansky, 2011), access economy (*The Economist*, 2013; Botsman, 2015; Rifkin, 2000), platform economy (Greenhouse, 2016; Farrell and Greig, 2016), and crowd-based capitalism (Sundararajan, 2016), among others. The definitions of "collaborative consumption" and "sharing economy" should be more specifically defined and distinguished, because their relationship with EWEB could differ. Moreover, the basis of collaborative consumption is not commercial, so motivations for participation in collaborative consumption could differ greatly from motivations for participation in the sharing economy.

The list of 17 behaviors included in the survey was chosen based on a review of "sharing economy" literature and related studies. Though the list of included behaviors that were relevant or available for Columbus residents, it includes items that are not ideal for our more narrowly-defined focus on collaborative consumption. Collaborative consumption is likely to be more important for shaping EWEB than participation in the "sharing economy," which is why we selected a subset of 11 behaviors that seem to be more clearly related to the definition of collaborative consumption used in the context of this study.

Future studies should utilize a set of collaborative consumption behaviors chosen more systematically. When deciding on which behaviors to include, researchers should focus on characteristics such as the degree of relevance of behaviors to the study area, how much social

interaction is required (if at all), and data on direct environmental impacts (or reduction of environmental impacts). Using a more focused set of collaborative consumption behaviors could thus lead to results that are more specific to the experience of respondents. For instance, our study defined "Using a mobile or online application/website to identify people with which to borrow or share equipment" as a collaborative consumption behavior. This behavior was not part of the subset of 11 behaviors. Though using a mobile application or website to identify people with which to borrow or share equipment could potentially lead to reduced environmental impacts and/or social interaction, the act of engaging in this behavior does not itself equate to engaging in collaborative consumption. If criteria for selecting the set of collaborative consumption behaviors included selecting behaviors that could have direct social and/or environmental behaviors, this behavior would not have been part of the set.

Additionally, researchers should be cognizant of the wording of their collaborative consumption behaviors and consider the likelihood of respondents participating in that behavior in the given study area. Another behavior we included in our study was "Being part of a cooperative that shares tools, expertise and equipment." Our results indicate that only 8 respondents participated in this behavior. One possibility as to why only 8 out of 271 respondents participated is the fact that we included tools, expertise, *and* equipment. It is possible that not many Columbus cooperatives share tools, expertise, and equipment. It could be that most cooperatives in Columbus share only tools and equipment, only expertise, or some combination. The behavior could have been worded differently or separated to assess cooperatives that share tools or equipment and cooperatives that share expertise separately. Furthermore, although this is an

activity that could have direct social and environmental impacts on one's life, it is important to consider whether respondents in the study area have access to participate in this type of activity.

The fact that collaborative consumption was associated with well-being, but not ecological footprint, has implications for the use of collaborative consumption and its classification as a vehicle to achieving sustainable consumption. The results of this study demonstrate that collaborative consumption is not necessarily "sustainable" if it does not satisfy the "ecologically responsible" component of definitions of sustainable consumption.

There are concerns more specific to the topic of secondhand consumption. The question of what constitutes and motivates secondhand consumption has been a controversial topic amongst the academic community (Gregson and Crewe, 2003; Jackson, 2005; Cooper, 2005). Many researchers assume that secondhand consumption constitutes sustainable consumption (Brooks and Wilson, 2015; Jackson, 2005), though others like Gregson and Crewe (2003) contend that the thrifty practices of secondhand consumers create more consumption opportunities. Thus, there is a question as to why consumers use secondhand services, and whether it is motivated by potential reductions in ecological footprint, increases in well-being, or simply frugality. Means-End Chain (MEC) analysis (Wilhelms et al., 2017) could be applied to services that facilitate collaborative consumption. The goal of MEC analysis is to understand overarching participative motives and motive structures in secondhand service usage. Thus, it could be utilized to analyze why consumers use secondhand services, and to identify the values that make a service relevant to a specific consumer group. Such an analysis could help researchers determine whether the motivation for sustainable consumption is curtailment and sustainability (Brooks and Wilson,

2015) or efficiency and economic interest (Gregson and Crewe, 2003). See Table 12 for example of MEC analysis. If such research is conducted, results could have implications for how public policy and city planning can incentivize sustainable consumption. For instance, if a research study finds that secondhand purchasing is mainly motivated by frugality, the results would suggest that allowing for more secondhand purchasing opportunities in more socioeconomically diverse areas such as Olde Towne East would likely increase EWEB by virtue of increasing well-being.

**Table 12: Exemplary means-end chains (Wilhelms et al., 2017)**

| *Respondent* | *Attribute* | *Functional consequence* | *Psychosocial consequence* | *Value* |
|---|---|---|---|---|
| ***Achim*** | Low utilization | Decrease vehicle need | Environmental awareness | Sustainability |
| ***Gaby*** | Rental income | Reduction of fixed costs | Save money | Economic interest |
| ***Joern*** | Interest in sharing | -- | Feels good | Help others |
| ***Markus*** | Low utilization | Additional income | Have money for other purposes | Quality of life |

The results also suggest that the relationship between collaborative consumption and EWEB in Clintonville is statistically significant, whereas the relationship between collaborative consumption and EWEB in Olde Towne East is not. In other words, collaborative consumption improves EWEB in Clintonville, but not in Olde Towne East. This might be the case because of Clintonville's relative affluence and education. It could also be due to the social norms that exist in Clintonville, but not in Olde Towne East. Future research should address this gap in knowledge. Perhaps Clintonville's relative affluence has led to better infrastructure that

facilitates collaborative consumption. For example, community gardens require the necessary infrastructure, planning, green space, and social norms to begin and sustain. Perhaps compared to Olde Towne East, Clintonville possesses more of a mix of factors that are likely to facilitate collaborative consumption.

There is an opportunity to further assess this relationship, and the reasoning behind this disparity in impact. Further research should assess why and how EWEB is impacted by collaborative consumption through well-being, but not ecological footprint. It would also be interested to see this study replicated in other Columbus neighborhoods, or other neighborhoods in cities of similar size and demographics. If multiple studies yield similar results, this may be an indication of consistent well-being and ecological footprint trends on a larger level.

Future studies exploring collaborative consumption and its relationship to the EWEB should also select a wider range of territories to control for social and economic factors. For Columbus specifically, this could mean assessing EWEB in a sample of all Columbus neighborhoods. On a larger scale, this could mean assessing EWEB in all Ohio counties. Further research in these areas needs to be conducted to obtain a more representative sample.

When considering which communities to designate as study areas, researchers should consider a myriad of characteristics. Certain aspects of communities could potentially affect the relationship between collaborative consumption and EWEB, such as green space, availability of public space for public use, mobility, social norms, transportation norms, and social capital, amongst other factors. Though some of these would be more difficult to measure than others, it is important to understand the make-up of a community and the norms that guide them.

Further credible research within the area of collaborative consumption and EWEB is necessary to make more informed and socially beneficial policy decisions. Studies on whether engagement in collaborative consumption leads to reduced environmental impacts or increased sustainability are sparse. This study contributes to a body of work relating to EWEB. More research is essential for measuring community impacts on a local and regional level. Historically, EWEB has been assessed on the national level. However, measuring collaborative consumption on a smaller scale, then a larger scale, could have great impacts on the well-being of communities.

Further research studies in this field have broad implications for public policy and community development. More robust evidence on a wider individual, neighborhood and community level is necessary to help inform public policy. As more support is gathered relating collaborative consumption to EWEB and well-being, results could provide insight into which public policies would be valuable to introduce in study areas to increase EWEB. Results could also provide insights for city and regional planning, since urban planning can have impacts on well-being and participation in collaborative consumption behaviors.

## Conclusion

This study yielded results useful for future relevant research. Our results indicate that the relationship between collaborative consumption and EWEB is positive and statistically significant, though it is driven by increases in well-being rather than decreases in ecological footprint. This disparity needs further inquiry, especially for a larger population and a wider range of study neighborhoods. The lack of significance between collaborative consumption and

EWEB in Olde Towne East also needs further research, since the exact characteristics of Olde Towne East that yielded a non-significant relationship between collaborative consumption and EWEB are unclear. Future research should attempt to assess the factors within each neighborhood that significantly impacted the relationship. Collaborative consumption needs a more cohesive definition that excludes commercial activities such as those encompassed in the various definitions of the sharing economy. This would allow for better and more specific assessment of their relationships to EWEB.

This study contributes to studies of EWEB on a smaller community level and assesses the relationship between EWEB and engagement in collaborative consumption. However, the study area was only two neighborhoods in Columbus, Ohio. A more complete study of collaborative consumption and EWEB in all Columbus neighborhoods would provide a more complete picture of the current situation in Columbus and help inform policy and planning to potentially increase well-being and decrease environmental impacts by designing spaces that are more conducive to those activities. Developing a better understanding of what factors contribute to increasing well-being and reducing ecological footprint can influence policy decisions to positively impact communities. Further research on its relationship with collaborative consumption can help meaningfully impact the lives of people in neighborhoods and communities. Overall, further research needs to be conducted to obtain a more representative sample of not only Columbus, but also the rest of Ohio, and other states and regions.

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## Literature Cited

Allred, S. B., & Ross-Davis, A. (2011). The drop-off and pick-up method: An approach to reduce nonresponse bias in natural resource surveys. *Small-scale Forestry, 10*(3), 305-318. Retrieved from http://doi.org/10.1007/s11842-010-9150-y

Ambrey, C. L., & Daniels, P. (2016). Happiness and footprints: Assessing the relationship between individual well-being and carbon footprints. *Environment, Development, and Sustainability, 18*. Retrieved from http://dx.doi.org/10.1007/s10668-016-9771-1

Andersson, D., Nässén, J., Larsson, J., & Holmberg, J. (2014). Greenhouse gas emissions and subjective well-being: An analysis of Swedish households. *Ecological Economics, 102*, 75-82. Retrieved from http://dx.doi.org/10.1016/j.ecolecon.2014.03.018

Arrow, K., Dasgupta, P., Goulder, L., Daily, G., Ehrlich, P., Heal, G., Levin, S., Mäler, K., Schneider, S., Starrett, D., & Walker, B. (2004). Are we consuming too much? *The Journal of Economic Perspectives, 18*(3), 147-172. Retrieved from http://www.jstor.org/stable/3216811

Baalderjahn, U. (1988). Personality variables and attitudes as predictors of ecologically responsible consumption patterns. *Journal of Business Research, 17*, 51-56.

Barr, S., & Gilg, A. (2006). Sustainable lifestyles: Framing environmental action in and around the home. *Geoforum, 37*, 906-920. Retrieved from http://dx.doi.org/10.1016/j.geoforum.2006.05.002

Begg, D., Fischer, S., & Dombusch, R. (2003). *Economics*. Seventh edition. Maidenhead, UK: McGraw-Hill.

Botsman, R. (2015). Defining the sharing economy: What is collaborative consumption – and what isn't? *Fast Company*. Retrieved from https://www.fastcompany.com/3046119/defining-the-sharing-economy-what-is-collaborative-consumption-and-what-isnt

Botsman, R., & Rogers, R. (2010). *What's mine is yours: How collaborative consumption is changing the way we live.* New York, NY: HarperCollins.

Bozek, R. (2018). *Uber, Lyft, Airbnb, and the sharing economy*. New York, NY: Greenhaven. Retrieved from http://osu.worldcat.org/oclc/978538611

Briceno, T., & Stagl, S. (2006). The role of social processes for sustainable consumption. *Journal of Cleaner Production, 14*(17), 1541-1551. Retrieved from http://dx.doi.org/10.1016/j.jclepro.2006.01.027

Brooks, J. S., & Wilson, C. (2015). The influence of contextual cues on the perceived status of consumption-reducing behavior. *Ecological Economics, 117,* 108-117. Retrieved from http://dx.doi.org/10.1016/j.ecolecon.2015.06.015

Brown, H. S., & Vergragt, P. J. (2015). From consumerism to wellbeing: Toward a cultural transition? *Journal of Cleaner Production, 132,* 308-317. Retrieved from https://doi.org/10.1016/j.jclepro.2015.04.107

Burgess, J., Bedford, T., Hobson, K., Davies, G., & Harrison, C. M. (2003). (Un)sustainable consumption. In F. Berkhout, M. Leach, & I. Scoones (Eds.), *Negotiating environmental change: New perspectives from social science* (pp. 261-292). Cheltenham, UK: Edward Elgar.

Calo, R., & Rosenblat, A. (2017). The taking economy: Uber, information, and power. *Columbia Law Review, 117,* 1623-1690. Retrieved from http://dx.doi.org/10.2139/ssrn.2929643

Campbell, C. (2004). I shop therefore I know that I am: The metaphysical basis of modern consumerism. In E. Ekström, & H. Brembeck (Eds.), *Elusive consumption.* Oxford, UK: Berg Publishers.

Cherry, M. A. (2016). Beyond misclassification: The digital transformation of work. *Comparative Labor Law & Policy Journal, 37*(1). Retrieved from https://ssrn.com/abstract=2734288

Claborn, K., & Brooks, J. S. (2018). Unpublished data.

Clark, W. A., & Finley, J. C. (2007). Contracting meter readers in a drop-off/pick-up survey in Blagoevgrad, Bulgaria. *Society & Natural Resources 20*(7), 669-673. Retrieved from http://doi.org/10.1080/08941920701329686

Clark, W. C., & Munn, R. E. (1986). *Sustainable development of the biosphere*. New York, NY: Cambridge University Press.

Cohen, M. J., & Murphy, J. (Eds.). (2001). *Exploring sustainable consumption: Environmental policy and the social sciences*. Amsterdam, NL: Pergamon.

Columbus Neighborhoods. (2017). Clintonville: About this neighborhood. *WOSU Public Media.* Retrieved from https://columbusneighborhoods.org/neighborhood/clintonville

Cooper, T. (2005). Slower consumption: Reflections on product life spans and "throwaway society." *Journal of Industrial Ecology, 9*, 51-67. Retrieved from http://dx.doi.org/10.1162/1088198054084671

Dietz, T., Rosa, E. A., & York, R. (2009). Environmentally efficient well-being: Rethinking sustainability as the relationship between human well-being and environmental impacts. *Human Ecology Review, 16*(1), 114-123. Retrieved from http://osu.worldcat.org/oclc/7025438902

Eckhardt, G. M., & Bardhi, F. (2015). The sharing economy isn't about sharing at all. *Harvard Business Review*. Retrieved from https://hbr.org/2015/01/the-sharing-economy-isnt-about-sharing-at-all

*The Economist*. (2013). All eyes on the sharing economy. Retrieved from https://www.economist.com/news/technology-quarterly/21572914-collaborative-consumption-technology-makes-it-easier-people-rent-items

Eden, S., Bear, C., & Walker, G. (2008). Mucky carrots and other proxies: Problematising the knowledge-fix for sustainable and ethical consumption. *Geoforum, 39*, 20144-1057. Retrieved from http://dx.doi.org/10.1016/j.geoforum.2007.11.001

Edwards, T. (2000). *Contradictions of consumption: Concepts, practices and politics in consumer society*. Milton Keynes, UK: Open University Press.

Farrell, D., & Greig, D. (2016). The online platform economy: Has growth peaked? JP Morgan Chase & Co Institute. Retrieved from https://www.jpmorganchase.com/corporate/institute/document/jpmc-institute-online-platform-econ-brief.pdf

Foroohar, R. (2016). How the gig economy could save capitalism. *TIME Magazine.* Retrieved from https://time.com/4370834/sharing-economy-gig-capitalism

Fox, J. (2016). Secrets of the sharing economy. *Bloomberg*. Retrieved from https://www.bloomberg.com/view/articles/2016-06-15/secrets-of-the-sharing-economy-in-the-age-of-uber

Gansky, L. (2011). Do more, own less: A grand theory of the sharing economy. *The Atlantic.* Retrieved from https://www.theatlantic.com/business/archive/2011/08/do-more-own-less-a-grand-theory-of-the-sharing-economy/244141

Geron, T. (2013). Airbnb and the unstoppable rise of the share economy. *Forbes Magazine*. Retrieved from https://www.forbes.com/sites/tomiogeron/2013/01/23/airbnb-and-the-unstoppable-rise-of-the-share-economy/#329ecadfaae3

Greenhouse, S. (2016). The whatchamacallit economy. *The New York Times*. Retrieved from https://www.nytimes.com/2016/12/16/opinion/the-whatchamacallit-economy.html

Gregson, N., & Crewe, L. (2003). *Second-hand cultures*. Oxford, UK: Berg Publishers.

Grootaert, C., & Bastelaer, V. T. (Eds.). (2002). *The role of social capital in development*. Cambridge, UK: Cambridge University Press.

Guillen-Royo, M., & Wilhite, H. (2015). Wellbeing and sustainable consumption. In W. Glatzer (Ed.), *Global handbook of well-being and quality of life* (pp. 301-316). Frankfurt, DE: Springer.

Hobson, K. (2010). Competing discourses of sustainable consumption: Does the 'rationalisation of lifestyles' make sense? *Environmental Politics, 11*(2), 95-120. Retrieved from https://doi.org/10.1080/714000601

Horowitz, S. (2011). Occupy big business: The sharing economy's quiet revolution. *The Atlantic.* Retrieved from https://www.theatlantic.com/business/archive/2011/12/occupy-big-business-the-sharing-economys-quiet-revolution/249582

Jackson, T. (2005). Live better by consuming less? Is there a "double dividend" in sustainable consumption? *Journal of Industrial Ecology, 9*(1-2), 19-36. Retrieved from http://dx.doi.org/10.1162/1088198054084734

Kahneman, D., & Krueger, A. B. (2006). Developments in the measurement of subjective wellbeing. *Journal of Economic Perspectives, 20*(1), 3-24. Retrieved from http://dx.doi.org/10.1257/089533006776526030

Knight, K. W., & Rosa, E. A. (2011). The environmentally efficiency of well-being: A cross-national analysis. *Social Science Research, 40*(3), 931-949. Retrieved from https://doi.org/10.1016/j.ssresearch.2010.11.002

Mathews, J. (2014). Sharing economy will produce its share of fights. *SF Gate*. Retrieved from https://www.sfgate.com/opinion/article/sharing-economy-will-produce-its-share-of-fights-5585517.php.

McLaren, D., & Agyeman, J. (2015). *Sharing cities: a case for truly smart and sustainable cities*. R. Gottlieb & H. R. Luce (Eds.). Cambridge, MA: MIT Press.

Miller, D. (2004). The little black dress is the solution, but what is the problem? In E. Ekström, & H. Brembeck (Eds.), *Elusive consumption.* Oxford, UK: Berg Publishers.

Mont, O. (2004). Institutionalisation of sustainable consumption patterns based on shared use. *Ecological Economics, 50*(1), 135-153. Retrieved from http://doi.org/10.1016/j.ecolecon.2004.03.030

Olde Towne East. (2018). History of Olde Towne East. Retrieved from https://oldetowneeast.org/area-history

Pearce, A., & Walrath, L. (N.d.). Definitions of sustainability from the literature. Atlanta, GA: Sustainable Facilities and Infrastructure, Georgia Institute of Technology. Retrieved from http://aquadoc.typepad.com/files/sustainability_definitions.pdf

Putnam, R. D. (2000). *Bowling alone: The collapse and revival of American community*. New York, NY: Simon and Schuster.

Rifkin, J. (2000). *The age of access: The new culture of hypercapitalism, where all of life is a paid-for experience*. New York, NY: J. P. Tarcher/Putnam.

Rinne, A. (2017). What exactly is the sharing economy? *World Economic Forum*. Retrieved from https://www.weforum.org/agenda/2017/12/when-is-sharing-not-really-sharing

Russell, R., & Wilkinson, M. (1979). *Microeconomics: A synthesis of modern and neoclassical theory.* New York, NY: John Wiley.

Shove, E. (2003). Converging conventions of comfort, cleanliness and convenience. *Journal of Consumer Policy: Consumer Issues in Law, Economics and Behavioural Sciences, 26*(4), 395-418. Retrieved from http://osu.worldcat.org/oclc/5649172853

Smith, A. (2016). Shared, collaborative and on demand: The new digital economy. *Pew Research Center*. Retrieved from http://www.pewinternet.org/2016/05/19/the-new-digital-economy

Southerton, D., Chappells, H., & Van Vliet, B. (Eds.). (2004). *Sustainable consumption: The implications of changing infrastructures of provision*. London, UK: Edward Elgar.

Steele, J., Bourke, L., Luloff, A. E., Liao, P-S., Theodori, G. L., & Krannich, R. S. (2001). The drop-off/pick-up method for household survey research. *Journal of Community Development Society, 32*(2), 238-250. Retrieved from http://osu.worldcat.org/oclc/4315751495

Steffen, W., Richardson, K., Rockström, J., Cornell, S. E., Fetzer, I., Bennett, E. M., Biggs, R., Carpenter, S. R., de Vries, W., de Wit, C. A., Folke, C., Gerten, D., Heinke, J., Mace, G. M., Persson, L. M., Ramanathan, V., Reyers, B., & Sörlin, S. (2015). Planetary boundaries: Guiding human development on a changing planet. *Science 347*(6223), 736-747. Retrieved from https://doi.org/10.1126/science.1259855

Strauss, I. E. (2017). The original sharing economy. *The Atlantic.* Retrieved from https://www.theatlantic.com/business/archive/2017/01/original-sharing-economy/511955

Sundararajan, A. (2016). *The sharing economy: The end of employment and the rise of crowd-based capitalism*. Cambridge, MA: MIT Press.

United States Census Bureau: American FactFinder. "B02001: Race (Universe: Total population)." *2011-2015 American Community Survey*. U.S. Census Bureau's American Community Survey Office, 2015. Retrieved from http://factfinder2.census.gov

United States Census Bureau: American FactFinder. "S1501: Education attainment." *2011-2015 American Community Survey*. U.S. Census Bureau's American Community Survey Office, 2015. Retrieved from http://factfinder2.census.gov

United States Census Bureau: American FactFinder. "S1901: Income in the past 12 months (in 2015 inflation-adjusted dollars)." U.S. Census Bureau's American Community Survey Office, 2015. Retrieved from http://factfinder2.census.gov

Wackernagel, M., & Rees, W. E. (1996). *Our ecological footprint: Reducing human impact on the Earth.* Gabriola Island, BC: New Society Publishers.

Wilhelms, M-P., Henkel, S., & Falk, T. (2017). To earn is not enough: A means-end analysis to uncover peer-providers' participation motives in peer-to-peer carsharing. *Technology Forecasting & Social Change, 125,* 38-47. Retrieved from http://dx.doi.org/10.1016/j.techfore.2017.03.030

World Commission on Environment and Development. (1987). *Our common future*. Oxford, UK: Oxford University Press.

Zillow. Clintonville home prices and values. Retrieved from https://www.zillow.com/clintonville-columbus-oh/home-values

Zillow. Olde Towne East home prices and values. Retrieved from https://www.zillow.com/olde-town-east-columbus-oh/home-values

# Appendices

## Appendix A: Development of the well-being metric

After conducting the literature review, researchers developed a multi-dimensional, context-specific well-being metric for the study site by utilizing focus groups and weighting well-being indicators. The goal of using both approaches was to determine which factors Columbus residents think are important for well-being and to determine the relative weight of each of those factors.

### *Focus group meetings*

The focus groups constitute a qualitative approach to eliciting factors that are important for Columbus residents' well-being. The focus groups were used to examine whether there is alignment between the "capitals" emphasized in the literature review and the factors that Columbus residents think are important for well-being. Researchers conducted five focus groups, which attracted 21 participants (9 males and 12 females) in two neighborhoods. The participants ranged from ages 19 through 64. Of the total participants, 15 identified as white and four identified as non-white. Two participants did not specify. Researchers recruited participants through flyer circulation in neighborhoods, civic association email lists, and community events. Focus groups lasted between 40 and 70 minutes. Questions asked in focus group meetings were mostly open-ended, with a set opening question: "What does it mean to live a fulfilling life?" The focus groups revealed factors from the literature review that were emphasized by Columbus residents, as well as factors that Columbus residents considered

important, but were not well-captured in the literature review. Overall, most factors residents considered to be important were reflected in existing literature and frameworks on well-being.

*Weighting well-being indicators*

Researchers weighted well-being indicators by modifying an activity developed by Walker et al. (2012) to determine how Columbus residents rank factors that contribute to well-being. This constituted the quantitative approach. Researchers gave participants in this activity a sheet with a list of 19 factors – derived from the Oxfam Humankind Index study – that are considered important for living a fulfilling life. Ten versions of the list were created to prevent response bias. Participants were given 15 stickers to indicate which of the 19 factors were most important for living a fulfilling life. This activity was conducted at several events through the city, such as:

i) Neighborhood Pride programs in three neighborhoods organized by the city of Columbus,

ii) The Columbus Center for Science and Industry (COSI) on five separate occasions, including two adult-only events, and

iii) A community jazz night in one of the sample communities.

Responses were collected from 372 individuals. Researchers used this information to develop the weight assigned to each factor, which was derived from the average number of stickers placed next to it during the activity.

Literature Cited

Walker, P., Michaelson, J., Strauss, K., & Trebeck, K. (2012). Oxfam Humankind Index for Scotland – Background: Methodology, consultation, and results. *Oxfam Research Report*, 2-48.

Appendix B: Survey

THE OHIO STATE UNIVERSITY

COLLEGE OF FOOD, AGRICULTURAL, AND ENVIRONMENTAL SCIENCES

# Measuring the Environmental Efficiency of Well-Being in Columbus

Survey Version: A
Survey Code:

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Dear Columbus Resident,

Thank you for your willingness to fill out the enclosed questionnaire on well-being and sustainability in Columbus. Your help is greatly appreciated. The summary of responses from your neighborhood will help inform policy makers and local leaders to make progress towards the goal of improving the well-being of Columbus residents in a sustainable way.

The enclosed questionnaire should take about 20 to 30 minutes. Once you have completed the questionnaire, please place it in the plastic bag in which it was delivered and hang it on your front door. A student researcher will return in two days to retrieve the survey.

**As an alternative to completing the paper questionnaire, you can access an electronic version online.** The online version can be completed on any device (desktop computer, laptop, tablet, smartphone) by either scanning the QR code (in the bottom right hand corner) *or* entering the following URL into your web browser (the address is case sensitive):

goo.gl/SpGcs3

If you complete the questionnaire online, please place the sticker you received in your bag onto the outside of the bag. Then, hang the bag with the *blank* survey from your front door. The blank form will be retrieved by a student researcher and the sticker will tell us that you have already completed the questionnaire online. As a sign of our thanks, you will have the opportunity to enter into a lottery for an approximately 1 in 50 chance to win one of *five* $100 cash prizes.

Sincerely,

Jeremy Brooks

**QR Code**

## Informed Consent

Please read this consent agreement carefully. You must be 18 years old or older to participate.

Purpose of the research: This study will examine Columbus residents' perceptions of their own well-being and their general consumption habits. The goal is to summarize the responses of your community in the interest of informing local leaders and policy-makers about well-being, and how to improve the quality of life of Columbus residents in a sustainable way.

Your contribution: You will have the opportunity to answer questions about your overall well-being and your household consumption patterns (for example: energy, food, transportation, clothes, technology). The survey will take about 20-30 minutes to complete. You may provide your email address to enter into a lottery for a chance to win a cash prize. Your email address will not be linked to your responses in any way.

Risks: There are no anticipated risks, beyond those encountered in daily life, associated with participating in this study.

Voluntary Withdrawal: Your participation is completely voluntary. You may skip over any questions that you do not feel comfortable answering. In order to calculate overall consumption levels, it is important to try to answer all questions to the best of your knowledge in Section 2 (Consumption and Environment).

Confidentiality: Your participation in this study will be completely confidential unless you are willing to allow us to contact you with follow-up questions. All data will be stored in a locked room and the researchers will not have collected any personal information through which you can be identified. Email addresses that are submitted for entry into the lottery will be collected on a separate page that will be stored in a separate location so that it cannot be connected with your survey responses. Results of this study will be presented at a Masters student's defense presentation and may be presented at conferences and published in books, journals, and/or in the popular media.

Who to contact about your rights in this study: For questions about your rights as a participant in this study or to discuss other study-related concerns or complaints with someone who is not part of the research team, you may contact Ms. Sandra Meadows in the Office of Responsible Research Practices at 1-800-678-6251.

Agreement: The purpose and nature of this research have been sufficiently explained and I voluntarily agree to participate in this study. I understand that I am free to withdraw at any time.

*If you have questions about this study, please contact:*
Dr. Jeremy Brooks School of Environment and Natural Resources, The Ohio State University, Columbus, OH 43210. Email: **brooks.719@osu.edu**, phone: 614-292-9787

# WELCOME!

**This survey consists of four question blocks that include measures about:**

1. Well-Being
2. Consumption and Environment
3. Work, Life, and Consumption
4. Basic Demographic Information

***Thank you in advance for your contribution to the study -- now let's get started!***

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## Section 1. Well-Being

The following questions ask about your perceptions of a set of factors that have been shown to contribute to well-being. Please answer the questions to the best of your knowledge.

**On the scale provided below, indicate your level of agreement with the following statements by marking the appropriate box:**

| | Strongly disagree | Disagree | Mildly disagree | Neither agree nor disagree | Mildly agree | Agree | Strongly agree |
|---|---|---|---|---|---|---|---|
| **1. I am part of a community** | ☐ | ☐ | ☐ | ☐ | ☐ | ☐ | ☐ |
| **2. I have opportunities and the freedom to make my own choices** | ☐ | ☐ | ☐ | ☐ | ☐ | ☐ | ☐ |
| **3. I feel good about myself and my life** | ☐ | ☐ | ☐ | ☐ | ☐ | ☐ | ☐ |
| **4. I feel respected and valued** | ☐ | ☐ | ☐ | ☐ | ☐ | ☐ | ☐ |

| | Strongly disagree | Disagree | Mildly disagree | Neither agree nor disagree | Mildly agree | Agree | Strongly agree |
|---|---|---|---|---|---|---|---|
| **5. The people I care about are safe** | ☐ | ☐ | ☐ | ☐ | ☐ | ☐ | ☐ |
| **6. I am physically healthy** | ☐ | ☐ | ☐ | ☐ | ☐ | ☐ | ☐ |
| **7. I have a safe and secure home to live in** | ☐ | ☐ | ☐ | ☐ | ☐ | ☐ | ☐ |
| **8. I have enough skills/ education to live a good life** | ☐ | ☐ | ☐ | ☐ | ☐ | ☐ | ☐ |
| **9. I am positive about my future** | ☐ | ☐ | ☐ | ☐ | ☐ | ☐ | ☐ |
| **10. I have good transportation to get where I need to go** | ☐ | ☐ | ☐ | ☐ | ☐ | ☐ | ☐ |
| **11. I have access to places outside of my home to socialize and/or share my beliefs** | ☐ | ☐ | ☐ | ☐ | ☐ | ☐ | ☐ |
| **12. I have good spiritual health** | ☐ | ☐ | ☐ | ☐ | ☐ | ☐ | ☐ |
| **13. I have access to high quality services (healthcare, support services, policing, care for the elderly, etc.)** | ☐ | ☐ | ☐ | ☐ | ☐ | ☐ | ☐ |

| | Strongly disagree | Disagree | Mildly disagree | Neither agree nor disagree | Mildly agree | Agree | Strongly agree |
|---|---|---|---|---|---|---|---|
| **14. I feel like I am part of something bigger than myself** | ☐ | ☐ | ☐ | ☐ | ☐ | ☐ | ☐ |
| **15. I have access to infrastructure in my local community that is necessary for my lifestyle (sidewalks, public transportation, grocery stores, etc.)** | ☐ | ☐ | ☐ | ☐ | ☐ | ☐ | ☐ |
| **16. I have income that is sufficient to pay the bills and buy what I need** | ☐ | ☐ | ☐ | ☐ | ☐ | ☐ | ☐ |
| **17. I am free from discrimination** | ☐ | ☐ | ☐ | ☐ | ☐ | ☐ | ☐ |
| **18. I enjoy my leisure time** | ☐ | ☐ | ☐ | ☐ | ☐ | ☐ | ☐ |
| **19. I, or someone in my household, has a secure job** | ☐ | ☐ | ☐ | ☐ | ☐ | ☐ | ☐ |
| **20. I have good relationships with friends** | ☐ | ☐ | ☐ | ☐ | ☐ | ☐ | ☐ |
| **21. I have a sense of purpose and am making a contribution (in my** | ☐ | ☐ | ☐ | ☐ | ☐ | ☐ | ☐ |

| | Strongly disagree | Disagree | Mildly disagree | Neither agree nor disagree | Mildly agree | Agree | Strongly agree |
|---|---|---|---|---|---|---|---|
| **job, relationships, community, or elsewhere)** | | | | | | | |
| **22. I live in a safe and secure neighborhood** | ☐ | ☐ | ☐ | ☐ | ☐ | ☐ | ☐ |
| **23. I have access to arts, culture, stimulation, hobbies, or other leisure activities** | ☐ | ☐ | ☐ | ☐ | ☐ | ☐ | ☐ |
| **24. I have good relationships with family** | ☐ | ☐ | ☐ | ☐ | ☐ | ☐ | ☐ |
| **25. I have satisfying work to do (paid or unpaid)** | ☐ | ☐ | ☐ | ☐ | ☐ | ☐ | ☐ |
| **26. On an average day, I feel mentally healthy** | ☐ | ☐ | ☐ | ☐ | ☐ | ☐ | ☐ |

27. Are there any aspects of well-being that you think have been left out from the list above? If so, please list them below:

28. If you could make one change *in your community* to improve your well-being, what would it be?

## Section 2. Consumption and Environment

The following questions have been taken directly from the Global Footprint Network's Personal Footprint Calculator (our personal footprint is an approximation of the environmental impacts of what we consume). Please answer the questions to the best of your knowledge and select only one answer unless otherwise directed.

### YOUR FOOD

29. How often do you eat…?

| | Never | Infrequently *(once every few weeks)* | Occasionally *(once or twice a week)* | Often *(nearly every day)* | Very often *(nearly every meal)* |
|---|---|---|---|---|---|
| Pork | ☐ | ☐ | ☐ | ☐ | ☐ |
| Beef/Lamb | ☐ | ☐ | ☐ | ☐ | ☐ |
| Poultry | ☐ | ☐ | ☐ | ☐ | ☐ |
| Fish | ☐ | ☐ | ☐ | ☐ | ☐ |
| Eggs/Milk/Dairy | ☐ | ☐ | ☐ | ☐ | ☐ |

30. How much of your diet is based on fresh, unpackaged foods?

- ☐ Almost none – *most of my meals are microwave dinners*
- ☐ Some – *I sometimes supplement my canned ravioli with a salad*
- ☐ About half – *sometimes I cook local food, sometimes I order pizza*
- ☐ Most – *I'm a farmer's market fiend but I really like potato chips*
- ☐ Almost all – *I practically live on a farm*

31. How much of the food that you eat is locally grown or produced (less than 200 miles away), including food you purchase at the grocery store?

- ☐ Very little of the food I eat is grown locally
- ☐ About one quarter
- ☐ About half
- ☐ About three quarters
- ☐ Most of the food I eat is grown locally

## YOUR HOME

32. What comes closest to your monthly clothing, footwear and/or sporting goods purchases? In a given month I tend to...

- ☐ Not buy much – *maybe some new T-shirts and socks*
- ☐ Buy a few times – *new pants and a couple of shirts*
- ☐ Buy a fair amount of new items – *new pants, running shoes, a few shirts, socks and underwear*
- ☐ Buy a lot of new items – *I'm up to date with all the latest fashion trends*

33. What comes closest to your household's annual new household furnishings purchases? In a given year I tend to...

- ☐ Not buy much – *for instance, maybe some bedding*
- ☐ Buy a few items –*, a new lamp or table, just to spruce things up*
- ☐ Buy a fair amount of new items – *a couch or a new bedroom set – I change it up from time to time*
- ☐ Buy a lot of new items – *for instance, I completely refurnish my living room, it's an annual ritual*

34. How often do you buy new household appliances?

- ☐ Rarely – *I don't purchase major appliances for my home, but I may buy small items like a blender*
- ☐ Infrequently – *I only replace broken appliances as needed*
- ☐ Occasionally – *I sometimes replace out-of-date appliances with new models*
- ☐ Often – *I replace most of my appliances with the latest and greatest models*

35. How often do you buy home entertainment, personal computer equipment and electronic gadgets for your household?

- ☐ Rarely – *I rarely purchase household electronics, but may have a mobile phone for example*
- ☐ Infrequently – *I generally only replace broken TVs, computers, etc.*
- ☐ Occasionally – *I replace out-of-date models and occasionally buy a new gadget*
- ☐ Often – *I own many of the newest gadgets on the market*

36. How often do you buy new books, magazines, and newspapers for your household?

- ☐ Very Rarely – *I buy a newspaper, magazine, or book a few times a year*
- ☐ Infrequently – *I buy several books or magazines a year, but not regularly*
- ☐ Occasionally – *I subscribe to a few newspapers or magazines and buy new books on occasion*
- ☐ Often – *I often get a newspaper and buy books or magazines every week or two*
- ☐ Very often – *I get a newspaper daily and buy books or magazines multiple times a week*

37. How much of your paper waste do you recycle?

- ☐ Very little – *I infrequently recycle paper*
- ☐ Some – *I recycle my newspapers or office paper, for example*
- ☐ Most – *I recycle my newspapers and some other products like cardboard*
- ☐ All – *I recycle all paper products whenever possible*

38. How much of your plastic waste do you recycle?

- ☐ Very little – *I recycle a little of the plastic that I use*
- ☐ Some – *I recycle all plastic beverage containers, for example*
- ☐ Most – *I recycle all plastic packing, including beverage containers*
- ☐ All – *I recycle all plastic products when possible*

39. Which housing type best describes your home?

- ☐ Free standing house without running water
- ☐ Free standing house with running water
- ☐ Multi-story apartment building
- ☐ Duplex or building with 2-4 housing units
- ☐ Luxury condominium
- ☐ Green-design residence

40. Do you have electricity in your home?

- ☐ Yes
- ☐ No

41. How many people currently live in your household? (*please enter the number below*

| |
|---|
| |

42. What comes closest to the material that is used for the exterior of your home?

- ☐ Wood
- ☐ Brick or stucco
- ☐ Vinyl siding
- ☐ Aluminum siding
- ☐ I don't know, or other

43. *To the best of your knowledge*, what percentage of your home's electricity comes from renewable sources that you have directly installed (solar panels/geothermal) or from "green" power (solar, wind, hydropower) purchased from your utility provider?

☐ 5% or less
☐ 6-20%
☐ 21-50%
☐ 51-75%
☐ 75-100%

44. How much do you typically spend per month on electricity for your home? Please enter an estimate in a dollar amount (if you do not know, please write "don't know").

45. How much do you typically spend per month on gas for your home? Please enter an estimate in a dollar amount (if you do not know, please write "don't know").

**YOUR MOBILITY**

46. How far do you travel by car each week (as a driver or passenger)?

☐ 0 miles – or I never ride in a car
☐ 1 – 50 miles
☐ 51 – 150 miles
☐ 151 – 200 miles
☐ 200 – 300 miles
☐ More than 300 miles

47. How far do you travel by motorbike each week (as a driver or passenger)?

☐ 0 miles – or I never ride on a motorbike
☐ 1 – 2 miles
☐ 3 – 10 miles
☐ 11 – 30 miles
☐ 31 – 70 miles
☐ More than 70 miles

48. What is the gas mileage of the car you travel in most often?

- ☐ I never ride in a car
- ☐ Fewer than 5 miles per gallon
- ☐ 6 – 15 miles per gallon
- ☐ 16 – 30 miles per gallon
- ☐ 31 – 40 miles per gallon
- ☐ 41 miles per gallon or more
- ☐ I don't know

49. What is the gas mileage of your motorbike?

- ☐ I never ride on a motorbike
- ☐ 15 – 30 miles per gallon miles per gallon
- ☐ 31 – 40 miles per gallon
- ☐ 41 – 50 miles per gallon
- ☐ 51 – 60 miles per gallon
- ☐ 61 miles per gallon or more
- ☐ I don't know

50. How often do you drive in a car with someone else?

- ☐ Almost never
- ☐ Occasionally
- ☐ Often
- ☐ Very often
- ☐ Almost always

51. How far do you travel by <u>bus</u> each week?

- ☐ 0 miles
- ☐ 1 – 5 miles
- ☐ 6 – 25 miles
- ☐ 26 – 50 miles
- ☐ 51 miles or more

52. How far do you travel by <u>train</u> each week?

- ☐ 0 miles
- ☐ 1 – 5 miles
- ☐ 6 – 25 miles
- ☐ 26 – 50 miles
- ☐ 51 miles or more

53. How many hours do you fly each year?

- ☐ I never fly
- ☐ 0 – 4 hours
- ☐ 5 – 10 hours
- ☐ 11 – 25 hours
- ☐ 26 – 100 hours
- ☐ 101 hours or more

## Section 3. Work, Life, and Consumption

The following set of questions asks more specifically about your social, economic, and environmental behaviors. Please answer the questions to the best of your knowledge.

54. Compared to most other households in my neighborhood, I feel as though my household's…

A. …level of wealth is probably…

- ☐ Much higher
- ☐ A little higher
- ☐ About the same
- ☐ A little lower
- ☐ Much lower

B. …level of consumption is probably…

- ☐ Much higher
- ☐ A little lower
- ☐ About the same
- ☐ A little lower
- ☐ Much lower

55. A. Compared to my friends, I feel as though my household's level of wealth is probably…

A. …level of wealth is probably…

- ☐ Much higher
- ☐ A little higher
- ☐ About the same
- ☐ A little lower
- ☐ Much lower

B. …level of consumption is probably…

- ☐ Much higher
- ☐ A little lower
- ☐ About the same
- ☐ A little lower
- ☐ Much lower

56. Are you currently employed?

☐ Yes ☐ No ☐ Retired

57. On a scale from 1 – 7 please indicated your general impression of the balance between your work life and your home life. *Please skip this question if you are not currently employed or are retired.*

| ☐ | ☐ | ☐ | ☐ | ☐ | ☐ | ☐ |
|---|---|---|---|---|---|---|
| **1** | **2** | **3** | **4** | **5** | **6** | **7** |
| *(I put too much time and energy into work and not enough into other interests and responsibilities)* | | | *(I have a good balance between home life and work responsibilities)* | | | *(I would like to have more paid work to devote my time and energy to rather than other pursuits)* |

58. The following practices involve shared use of equipment, tools, space, or involve the reuse of material goods. How often do you engage in each practice?

| Never | Occasionally | Regularly | **Activity** |
|---|---|---|---|
| ☐ | ☐ | ☐ | Car-sharing (examples: Zipcar, Car2Go, Uber, Lyft) |
| ☐ | ☐ | ☐ | Car pooling |
| ☐ | ☐ | ☐ | Borrowing a tool from a tool library |
| ☐ | ☐ | ☐ | Renting a tool from a hardware store |
| ☐ | ☐ | ☐ | Borrowing/sharing a tool or equipment with a neighbor face to face |
| ☐ | ☐ | ☐ | Using a mobile or online application/website to identify people with which to borrow or share equipment |
| ☐ | ☐ | ☐ | Being part of a cooperative that shares tools, expertise and equipment (examples: Columbus Idea Foundry, Makerspace) |
| ☐ | ☐ | ☐ | Buying second hand clothing, sporting goods, or furniture from second-hand stores |
| ☐ | ☐ | ☐ | Buying second-hand items via a website or listserv (examples: Craigslist, Ebay, Freecycle, buy-sell-trade) |
| ☐ | ☐ | ☐ | Buying second-hand items at garage or rummage sales |
| ☐ | ☐ | ☐ | Borrowing books or other media from the library |
| ☐ | ☐ | ☐ | Borrowing/sharing books with friends/family |
| ☐ | ☐ | ☐ | Growing food in a community garden |
| ☐ | ☐ | ☐ | Sharing food grown in your own garden or garden plot |
| ☐ | ☐ | ☐ | Purchasing produce through Community Supported Agriculture (CSA) |
| ☐ | ☐ | ☐ | Participating in a local time bank or informally bartering skills and/or expertise |
| ☐ | ☐ | ☐ | Participating in childcare co-ops, nanny shares, or shared babysitting |
| ☐ | ☐ | ☐ | Other sharing practice or behavior (please list below): |

***Please skip the following two questions (59 & 60) if you did NOT select any practices from the list above. You may move directly to <u>Section 4. Demographics</u>.***

59. Has your involvement in any of these practices lead to <u>new relationships or social connections</u> with people you otherwise would not have met?

☐ No, I have not made any new connections or developed new relationships

***If yes, please select all practices through which you have made new friends and formed <u>new relationships</u>:***

| | |
|---|---|
| ☐ | Car-sharing (examples: Zipcar, Car2Go, Uber, Lyft) |
| ☐ | Car pooling |
| ☐ | Borrowing a tool from a tool library |
| ☐ | Renting a tool from a hardware store |
| ☐ | Borrowing/sharing a tool or equipment with a neighbor face to face |
| ☐ | Using a mobile or online application/website to identify people with which to borrow or share equipment |
| ☐ | Being part of a cooperative that shares tools, expertise and equipment (examples: Columbus Idea Foundry, Makerspace) |
| ☐ | Buying second hand clothing, sporting goods, or furniture from second hand stores |
| ☐ | Buying second-hand items via a website or listserv (examples: Craigslist, Ebay, Freecycle, buy-sell-trade) |
| ☐ | Buying second-hand items at garage or rummage sales |
| ☐ | Borrowing books or other media from the library |
| ☐ | Borrowing/sharing books with friends/family |
| ☐ | Growing food in a community garden |
| ☐ | Sharing food grown in your own garden or garden plot |
| ☐ | Purchasing produce through Community Supported Agriculture (CSA) |
| ☐ | Participating in a local time bank or informally bartering skills and or expertise |
| ☐ | Participating in childcare co-ops, nanny shares, or shared babysitting |
| ☐ | Other sharing practice or behavior (please list below): |

60. Has your involvement in any of these practices *strengthened* or *weakened* existing relationships or social connections?

***If yes, please select all practices through which already established friendships or relationships have been strengthened, weakened, or have not been impacted by these practices:***

| Strengthened | Weakened | No effect | |
|---|---|---|---|
| ☐ | ☐ | ☐ | Car-sharing (examples: Zipcar, Car2Go, Uber, Lyft) |
| ☐ | ☐ | ☐ | Car pooling |
| ☐ | ☐ | ☐ | Borrowing a tool from a tool library |
| ☐ | ☐ | ☐ | Renting a tool from a hardware store |
| ☐ | ☐ | ☐ | Borrowing/sharing a tool or equipment with a neighbor face to face |
| ☐ | ☐ | ☐ | Using a mobile or online application/website to identify people with which to borrow or share equipment |
| ☐ | ☐ | ☐ | Being part of a cooperative that shares tools, expertise and equipment (examples: Columbus Idea Foundry, Makerspace) |
| ☐ | ☐ | ☐ | Buying second hand clothing, sporting goods, or furniture from second hand stores |
| ☐ | ☐ | ☐ | Buying second-hand items via a website or listserv (examples: Craigslist, Ebay, Freecycle, buy-sell-trade) |
| ☐ | ☐ | ☐ | Buying second-hand items at garage or rummage sales |
| ☐ | ☐ | ☐ | Borrowing books or other media from the library |
| ☐ | ☐ | ☐ | Borrowing/sharing books with friends/family |
| ☐ | ☐ | ☐ | Growing food in a community garden |
| ☐ | ☐ | ☐ | Sharing food grown in your own garden or garden plot |
| ☐ | ☐ | ☐ | Purchasing produce through Community Supported Agriculture (CSA) |
| ☐ | ☐ | ☐ | Participating in a local time bank or informally bartering skills and or expertise |
| ☐ | ☐ | ☐ | Participating in childcare co-ops, nanny shares, or shared babysitting |
| ☐ | ☐ | ☐ | Other sharing practice or behavior (please list below): |

## Section 4. Demographics

Please complete the following demographic questions to the best of your knowledge. Your responses help us to understand the diversity that can be found in the Columbus region.

61. For how many years have you lived in the Columbus metropolitan area?

62. For how many years have you lived in your current neighborhood?

63. For how many more years do you expect to live in your current neighborhood?

- ☐ Less than 5 years
- ☐ 5-10 years
- ☐ 10-20 years
- ☐ More than 20 years
- ☐ I don't know

64. How strongly do you identify with your neighborhood?

- ☐ Very strongly – *being a part of my neighborhood is a very important part of who I am*
- ☐ Somewhat strongly
- ☐ Not very strongly
- ☐ Not at all – *I am not even sure what neighborhood I am part of*

65. Do you rent or own your current property?

- ☐ Rent – *short-term lease*
- ☐ Rent – *long-term lease*
- ☐ Rent – *month-to-month*
- ☐ Own – *currently paying a mortgage*
- ☐ Own – *property is completely paid off*

66. In what year were you born?

67. What is your gender?

☐ Female ☐ Male ☐ Other

68. What is your *household's* approximate <u>total annual</u> income (before taxes)?

☐ No income
☐ < $20,000
☐ $20,000 - $39,999
☐ $40, 000 - $59,999
☐ $60,000 - $79,999
☐ $80,000 - $99,999
☐ $100,000 - $119,999
☐ $120,000 - $139,999
☐ > $140,000
☐ Don't know

69. What is the highest level of education you have completed?

☐ Some schooling but no diploma or degree
☐ High school diploma or GED equivalent
☐ Some college
☐ College degree
☐ Some graduate school
☐ Graduate degree
☐ Don't know

70. Are you of Hispanic, Latino, or Spanish origin?

☐ No, not of Hispanic, Latino, or Spanish origin
☐ Yes, Cuban
☐ Yes, Mexican, Mexican Am., Chicano
☐ Yes, Puerto Rican
☐ Yes, another Hispanic, Latino, or Spanish origin *(print in space below)*

_____

71. What is your race?

☐ White
☐ Black or African American
☐ American Indian or Alaska Native
☐ Asian Indian
☐ Chinese
☐ Japanese
☐ Korean
☐ Filipino
☐ Vietnamese
☐ Native Hawaiian
☐ Other Asian (*print in space below*)

_____

☐ Other Pacific Islander (*print in space below*)

_____

☐ Other (*print in space below*)

_____

72. How many children or dependent minors currently live in your household?

*Please enter the number here:*

73. We would like to be able to conduct follow up interviews with some Columbus residents about their well-being and environmental impact.

If you are willing to participate in a follow-up interview through which we can ask additional questions, please enter your email address or phone number (including area code) below. By providing your contact information, we may link your responses above to the follow-up interview.
Otherwise, your responses will not be linked to your identity. Entering your information does not guarantee that we will contact you.

Email / Phone (including area code):

# *THANK YOU!!*

## *Your time and your responses are greatly appreciated!*

## *See the next page for the opportunity to enter a lottery for a $100 cash prize!*

# *To enter the lottery:*

As a thank you for your participation in the study, we will be giving away FIVE separate $100 cash prizes in a lottery. To enter for your chance to win, provide either your phone number (including area code) or email address in the space provided below. The chances of winning are approximately 1 in 50. Please write legibly so that we can contact you in the event that you are a winner. *Your contact information will not be stored with your survey responses so the answers you provided will remain anonymous*:

| Email / Phone number (including area code): |
| --- |
| |